

"FEE ADDRESS" INDICATION FORM

To: MAIL STOP: M Fee Correspondence
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Please recognize as the "Fee Address," under the provisions of 37 CFR 1.363, the following address:

COMPUTER PATENT ANNUITIES, INC.
225 Reinekers Lane
Suite 400
Alexandria, VA 22314

Payor Number: 000197

in the following listed application(s) or patent(s) for which the issue fee has been paid.

<u>Patent No.</u>	<u>Serial No.</u>	<u>Patent Date</u>	<u>US Filing Date</u>	<u>Confirmation No.</u>	<u>Attorney Docket No.</u>
7,554,263 B2	10/773,587	6/30/09	2/6/04	6735	0553-0397

Respectfully Submitted,



Mark J. Murphy
Registration No. 34,225
Date: August 28, 2009

COOK ALEX Ltd.
200 West Adams Street
Suite 2850
Chicago, Illinois 60606
(312) 236-8500

Customer No: 26568



US007554263B2

(12) **United States Patent**
Takahashi(10) **Patent No.:** **US 7,554,263 B2**
(45) **Date of Patent:** **Jun. 30, 2009**(54) **LIGHT EMITTING DEVICE HAVING
TRANSPARENT FILM VARYING
REFRACTIVE INDEX AND
MANUFACTURING METHOD THEREOF**2001/0041268 A1 * 11/2001 Arai et al. 428/690
2003/0160247 A1 8/2003 Miyazawa 257/79
2004/0008968 A1 * 1/2004 Lee et al. 385/142(75) **Inventor:** Masahiro Takahashi, Kanagawa (JP)(73) **Assignee:** Semiconductor Energy Laboratory
Co., Ltd. (JP)

(Continued)

FOREIGN PATENT DOCUMENTS(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 251 days.

EP 1 377 134 A1 1/2004

(21) **Appl. No.:** 10/773,587

(Continued)

(22) **Filed:** Feb. 6, 2004**OTHER PUBLICATIONS**(65) **Prior Publication Data**

US 2004/0160171 A1 Aug. 19, 2004

Tang, C.W. et al. "Organic Electroluminescent Diodes," Appl. Phys.
Lett., vol. 51, No. 12, pp. 913-915, Sep. 21, 1987.

(Continued)

(30) **Foreign Application Priority Data**

Feb. 12, 2003 (JP) 2003-033054

Primary Examiner—Sikha Roy
(74) *Attorney, Agent, or Firm*—Cook Alex Ltd.(51) **Int. Cl.**
H05B 33/00 (2006.01)
H05B 33/04 (2006.01)(57) **ABSTRACT**(52) **U.S. Cl.** 313/506; 313/504; 313/512;
428/690; 428/917; 257/100(58) **Field of Classification Search** 313/506
See application file for complete search history.(56) **References Cited****U.S. PATENT DOCUMENTS**5,003,221 A * 3/1991 Shimizu 313/509
5,869,929 A * 2/1999 Eida et al. 313/501
6,157,426 A * 12/2000 Gu 349/111
6,623,862 B2 * 9/2003 Choi et al. 428/428
6,673,659 B2 1/2004 Sakama et al. 438/149
6,889,492 B1 * 2/2004 Yamazaki et al. 428/690
6,894,431 B2 * 5/2005 Yamazaki et al. 313/498
2001/0004121 A1 * 6/2001 Sakama et al. 257/347
2001/0016262 A1 * 8/2001 Toyoshima et al. 428/428

A method for manufacturing a light emitting device with higher light extraction efficiency, lower consumption, longer operation life, and higher reliability can be provided. The light emitting device of the present invention comprises a substrate having an insulating surface, a transparent film formed over the substrate having the insulating surface, a first electrode formed over the transparent film, a layer including an organic compound formed over the first electrode, and a second electrode formed over the layer including the organic compound, wherein the refractive index of the transparent film sequentially varies from an interface at the side of the substrate having the insulating surface to an interface at the side of the first electrode.

18 Claims, 11 Drawing Sheets